

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Original) A method comprising:
advancing a member into a nucleus pulposus of an intervertebral disc by blunt dissection, the
nucleus pulposus having a volume, and
applying radiofrequency energy from the member to decrease the volume of the nucleus
pulposus.
2. (Original) The method of claim 1 wherein applying radiofrequency energy removes
material of the nucleus pulposus.
3. (Original) The method of claim 1 wherein applying radiofrequency energy removes
water of the nucleus pulposus.
4. (Original) The method of claim 1 wherein applying radiofrequency energy removes
disc tissue of the nucleus pulposus.
5. (Original) The method of claim 2 or 3 wherein applying radiofrequency energy
removes disc tissue of the nucleus pulposus.
6. (Original) The method of claim 1, 2, 3, or 4 wherein applying radiofrequency energy
from the member to decrease the volume of the nucleus pulposus reduces pressure in the
intervertebral disc.

7. (Original) The method of claim 1, 2, 3, or 4 wherein applying radiofrequency energy to decrease the volume of the nucleus pulposus comprises ablating material of the nucleus pulposus.

8. (Original) The method of claim 1, 2, 3, or 4 further comprising denervating at least a portion of the intervertebral disc with the applied radiofrequency energy.

9. (Original) The method of claim 1, 2, 3, or 4 wherein advancing the member comprises advancing the member through an introducer.

10. (Original) The method of claim 1, 2, 3, or 4 wherein advancing the member comprises advancing the member beyond a central region of the nucleus pulposus.

11. (Original) The method of claim 1, 2, 3, or 4 wherein applying radiofrequency energy comprises applying radiofrequency energy from an electrode of the member.

12. (Original) The method of claim 11 further comprising advancing the electrode beyond an introducer.

13. (Original) The method of claim 11 further comprising providing the member with a bipolar electrode configuration.

14. (Original) The method of claim 1 further comprises applying rotation to a proximal region of the member to rotate a distal region of the member within the nucleus pulposus.

15. (Original) The method of claim 1 or 14 further comprising positioning a portion of the member at an inner wall of an annulus fibrosus of the intervertebral disc.

16. (Original) The method of claim 1 or 14 wherein advancing the member comprises advancing the member along a curved path.

17. (Original) The method of claim 1 further comprising providing the member with a total length between 5 and 24 inches.

18. (Original) The method of claim 1 further comprising providing the member in the form of a catheter.

19. (Original) The method of claim 1, 2, 3, or 4 wherein applying radiofrequency energy comprises applying radiofrequency energy to an inner wall of an annulus fibrosus.

20. (Original) The method of claim 1, 2, 3, or 4 wherein applying radiofrequency energy comprises applying radiofrequency energy while the member is positioned at a location adjacent an inner wall of an annulus fibrosus.

21. (Original) The method of claim 1, 2, 3, or 4 wherein applying radiofrequency energy comprises applying radiofrequency energy to multiple locations in the intervertebral disc.

22. (Original) The method of claim 21 wherein applying radiofrequency energy to multiple locations comprises applying radiofrequency energy to the multiple locations simultaneously.

23. (Original) The method of claim 21 wherein applying radiofrequency energy to multiple locations comprises applying radiofrequency energy to the multiple locations using separate energy delivery elements of the member.

24. (Original) The method of claim 21 wherein applying radiofrequency energy to multiple locations comprises applying radiofrequency energy to the multiple locations serially.

25. (Original) The method of claim 21 wherein applying radiofrequency energy to multiple locations comprises applying radiofrequency energy to the multiple locations using a single energy delivery element of the member.

26. (Original) The method of claim 1, 2, 3, or 4 further comprising advancing the member along an inner wall of an annulus fibrosus.

27. (Original) A method comprising:
advancing a member through a nucleus pulposus of an intervertebral disc beyond a central region of the nucleus pulposus, the nucleus pulposus having a volume, and
applying radiofrequency energy from the member to decrease the volume of the nucleus pulposus.

28. (Original) The method of claim 27 wherein applying radiofrequency energy removes material of the nucleus pulposus.

29. (Original) The method of claim 27 wherein applying radiofrequency energy removes water of the nucleus pulposus.

30. (Original) The method of claim 27 wherein applying radiofrequency energy removes disc tissue of the nucleus pulposus.

31. (Original) The method of claim 28 or 29 wherein applying radiofrequency energy removes disc tissue of the nucleus pulposus.

32. (Original) The method of claim 27, 28, 29, or 30 wherein applying radiofrequency energy from the member to decrease the volume of the nucleus pulposus reduces pressure in the intervertebral disc.

33. (Original) The method of claim 27, 28, 29, or 30 wherein applying radiofrequency energy to decrease the volume of the nucleus pulposus comprises ablating material of the nucleus pulposus.

34. (Original) The method of claim 27, 28, 29, or 30 further comprising denervating at least a portion of the intervertebral disc with the applied radiofrequency energy.

35. (Original) The method of claim 27, 28, 29, or 30 wherein advancing the member comprises advancing the member through an introducer.

36. (Original) The method of claim 27, 28, 29, or 30 wherein applying radiofrequency energy comprises applying radiofrequency energy from an electrode of the member.

37. (Original) The method of claim 36 further comprising advancing the electrode beyond an introducer.

38. (Original) The method of claim 36 further comprising providing the member with a bipolar electrode configuration.

39. (Original) The method of claim 27 further comprising applying rotation to a proximal region of the member to rotate a distal region of the member within the nucleus pulposus.

40. (Original) The method of claim 27 or 39 further comprising positioning a portion of the member at an inner wall of an annulus fibrosus of the intervertebral disc.

41. (Original) The method of claim 27 or 39 wherein advancing the member comprises advancing the member along a curved path.

42. (Original) The method of claim 27 further comprising providing the member with a total length between 5 and 24 inches.

43. (Original) The method of claim 27 further comprising providing the member in the form of a catheter.

44. (Original) The method of claim 27, 28, 29, or 30 wherein applying radiofrequency energy comprises applying radiofrequency energy to an inner wall of an annulus fibrosus.

45. (Original) The method of claim 27, 28, 29, or 30 wherein applying radiofrequency energy comprises applying radiofrequency energy while the member is positioned at a location adjacent an inner wall of an annulus fibrosus.

46. (Original) The method of claim 27, 28, 29, or 30 wherein applying radiofrequency energy comprises applying radiofrequency energy to multiple locations in the intervertebral disc.

47. (Original) The method of claim 46 wherein applying radiofrequency energy to multiple locations comprises applying radiofrequency energy to the multiple locations simultaneously.

48. (Original) The method of claim 46 wherein applying radiofrequency energy to multiple locations comprises applying radiofrequency energy to the multiple locations using separate energy delivery elements of the member.

49. (Original) The method of claim 46 wherein applying radiofrequency energy to multiple locations comprises applying radiofrequency energy to the multiple locations serially.

50. (Original) The method of claim 46 wherein applying radiofrequency energy to multiple locations comprises applying radiofrequency energy to the multiple locations using a single energy delivery element of the member.

51. (Original) The method of claim 27, 28, 29, or 30 further comprising advancing the member along an inner wall of an annulus fibrosus.

52. (Original) A method comprising:
advancing a radiofrequency electrode into a nucleus pulposus of an intervertebral disc by blunt dissection, the nucleus pulposus having a volume, and
activating the electrode to decrease the volume of the nucleus pulposus.

53. (Original) The method of claim 52 wherein activating the electrode to decrease the volume of the nucleus pulposus reduces pressure in the intervertebral disc.

54. (Original) The method of claim 52 or 53 wherein activating the electrode to decrease the volume of the nucleus pulposus comprises ablating material of the nucleus pulposus.

55. (Original) The method of claim 52 or 53 wherein advancing the electrode comprises advancing the electrode beyond a central region of the nucleus pulposus.

56. (Original) The method of claim 52 wherein advancing the electrode further comprises advancing a bipolar electrode configuration.

57. (Original) The method of claim 52 or 56 further comprising positioning the electrode at an inner wall of an annulus fibrosus of the intervertebral disc.

58. (Original) The method of claim 52 or 56 wherein advancing the electrode comprises advancing the electrode along a curved path.

59. (Original) The method of claim 52 or 53 wherein activating the electrode comprises activating the electrode while the electrode is positioned at a location adjacent an inner wall of an annulus fibrosus.

60. (Original) The method of claim 52 or 53 wherein activating the electrode comprises delivering radiofrequency energy from the electrode to multiple locations in the intervertebral disc.

61. (Original) The method of claim 60 wherein delivering radiofrequency energy to multiple locations comprises delivering radiofrequency energy from the electrode to the multiple locations simultaneously.

62. (Original) The method of claim 60 wherein delivering radiofrequency energy to multiple locations comprises delivering radiofrequency energy from the electrode to the multiple locations serially.

63. (Original) The method of claim 52 or 53 further comprising advancing the electrode along an inner wall of an annulus fibrosus.

64. (Original) A method comprising:
advancing a radiofrequency electrode through a nucleus pulposus of an intervertebral disc beyond a central region of the nucleus pulposus, the nucleus pulposus having a volume, and activating the electrode to decrease the volume of the nucleus pulposus.

65. (Original) The method of claim 64 wherein activating the electrode to decrease the volume of the nucleus pulposus reduces pressure in the intervertebral disc.

66. (Original) The method of claim 64 or 65 wherein activating the electrode to decrease the volume of the nucleus pulposus comprises ablating material of the nucleus pulposus.

67. (Original) The method of claim 64 wherein advancing the electrode further comprises advancing a bipolar electrode configuration.

68. (Original) The method of claim 64 or 67 further comprising positioning the electrode at an inner wall of an annulus fibrosus of the intervertebral disc.

69. (Original) The method of claim 64 or 67 wherein advancing the electrode comprises advancing the electrode along a curved path.

70. (Original) The method of claim 64 or 65 wherein activating the electrode comprises activating the electrode while the electrode is positioned at a location adjacent an inner wall of an annulus fibrosus.

71. (Original) The method of claim 64 or 65 wherein activating the electrode comprises delivering radiofrequency energy from the electrode to multiple locations in the intervertebral disc.

72. (Original) The method of claim 71 wherein delivering radiofrequency energy to multiple locations comprises delivering radiofrequency energy from the electrode to the multiple locations simultaneously.

73. (Original) The method of claim 71 wherein delivering radiofrequency energy to multiple locations comprises delivering radiofrequency energy from the electrode to the multiple locations serially.

74. (Original) The method of claim 64 or 65 further comprising advancing the electrode along an inner wall of an annulus fibrosus.

75. (Original) A method comprising:
advancing a member into a nucleus pulposus of an intervertebral disc by blunt dissection,
and
applying radiofrequency energy from the member to remove material of the nucleus pulposus.

76. (Original) The method of claim 75 wherein applying radiofrequency energy removes water of the nucleus pulposus.

77. (Original) The method of claim 75 wherein applying radiofrequency energy removes disc tissue of the nucleus pulposus.

78. (Original) The method of claim 76 wherein applying radiofrequency energy removes disc tissue of the nucleus pulposus.

79. (Original) The method of claim 75, 76, 77, or 78 wherein applying radiofrequency energy from the member to remove material of the nucleus pulposus reduces pressure in the intervertebral disc.

80. (Original) The method of claim 75, 76, 77, or 78 wherein applying radiofrequency energy from the member to remove material of the nucleus pulposus comprises ablating material of the nucleus pulposus.

81. (Original) The method of claim 75, 76, 77, or 78 further comprising denervating at least a portion of the intervertebral disc with the applied radiofrequency energy.

82. (Original) The method of claim 75, 76, 77, or 78 wherein advancing the member comprises advancing the member through an introducer.

83. (Original) The method of claim 75, 76, 77, or 78 wherein advancing the member comprises advancing the member beyond a central region of the nucleus pulposus.

84. (Original) The method of claim 75, 76, 77, or 78 wherein applying radiofrequency energy comprises applying radiofrequency energy from an electrode of the member.

85. (Original) The method of claim 84 further comprising advancing the electrode beyond an introducer.

86. (Original) The method of claim 84 further comprising providing the member with a bipolar electrode configuration.

87. (Original) The method of claim 75 further comprising applying rotation to a proximal region of the member to rotate a distal region of the member within the nucleus pulposus.

88. (Original) The method of claim 75 or 87 further comprising positioning a portion of the member at an inner wall of an annulus fibrosus of the intervertebral disc.

89. (Original) The method of claim 75 or 87 wherein advancing the member comprises advancing the member along a curved path.

90. (Original) The method of claim 75 further comprising providing the member with a total length between 5 and 24 inches.

91. (Original) The method of claim 75 further comprising providing the member in the form of a catheter.

92. (Original) The method of claim 75, 76, 77, or 78 wherein applying radiofrequency energy comprises applying radiofrequency energy to an inner wall of an annulus fibrosus.

93. (Original) The method of claim 75, 76, 77, or 78 wherein applying radiofrequency energy comprises applying radiofrequency energy while the member is positioned at a location adjacent an inner wall of an annulus fibrosus.

94. (Original) The method of claim 75, 76, 77, or 78 wherein applying radiofrequency energy comprises applying radiofrequency energy to multiple locations in the intervertebral disc.

95. (Original) The method of claim 94 wherein applying radiofrequency energy to multiple locations comprises applying radiofrequency energy to the multiple locations simultaneously.

96. (Original) The method of claim 94 wherein applying radiofrequency energy to multiple locations comprises applying radiofrequency energy to the multiple locations using separate energy delivery elements of the member.

97. (Original) The method of claim 94 wherein applying radiofrequency energy to multiple locations comprises applying radiofrequency energy to the multiple locations serially.

98. (Original) The method of claim 94 wherein applying radiofrequency energy to multiple locations comprises applying radiofrequency energy to the multiple locations using a single energy delivery element of the member.

99. (Original) The method of claim 75, 76, 77, or 78 further comprising advancing the member along an inner wall of an annulus fibrosus.

100. (Original) A method comprising:
advancing a member through a nucleus pulposus of an intervertebral disc beyond a central region of the nucleus pulposus, and
applying radiofrequency energy from the member to remove material of the nucleus pulposus.

101. (Original) The method of claim 100 wherein applying radiofrequency energy removes water of the nucleus pulposus.

102. (Original) The method of claim 100 wherein applying radiofrequency energy removes disc tissue of the nucleus pulposus.

103. (Original) The method of claim 101 wherein applying radiofrequency energy removes disc tissue of the nucleus pulposus.

104. (Original) The method of claim 100, 101, 102, or 103 wherein applying radiofrequency energy from the member to remove material of the nucleus pulposus reduces pressure in the intervertebral disc.

105. (Original) The method of claim 100, 101, 102, or 103 wherein applying radiofrequency energy from the member to remove material of the nucleus pulposus comprises ablating material of the nucleus pulposus.

106. (Original) The method of claim 100, 101, 102, or 103 further comprising denervating at least a portion of the intervertebral disc with the applied radiofrequency energy.

107. (Original) The method of claim 100, 101, 102, or 103 wherein advancing the member comprises advancing the member through an introducer.

108. (Original) The method of claim 100, 101, 102, or 103 wherein applying radiofrequency energy comprises applying radiofrequency energy from an electrode of the member.

109. (Original) The method of claim 108 further comprising advancing the electrode beyond an introducer.

110. (Original) The method of claim 108 further comprising providing the member with a bipolar electrode configuration.

111. (Original) The method of claim 100 further comprises applying rotation to a proximal region of the member to rotate a distal region of the member within the nucleus pulposus.

112. (Original) The method of claim 100 or 111 further comprising positioning a portion of the member at an inner wall of an annulus fibrosus of the intervertebral disc.

113. (Original) The method of claim 100 or 111 wherein advancing the member comprises advancing the member along a curved path.

114. (Original) The method of claim 100 further comprising providing the member with a total length between 5 and 24 inches.

115. (Original) The method of claim 100 further comprising providing the member in the form of a catheter.

116. (Original) The method of claim 100, 101, 102, or 103 wherein applying radiofrequency energy comprises applying radiofrequency energy to an inner wall of an annulus fibrosus.

117. (Original) The method of claim 100, 101, 102, or 103 wherein applying radiofrequency energy comprises applying radiofrequency energy while the member is positioned at a location adjacent an inner wall of an annulus fibrosus.

118. (Original) The method of claim 100, 101, 102, or 103 wherein applying radiofrequency energy comprises applying radiofrequency energy to multiple locations in the intervertebral disc.

119. (Original) The method of claim 118 wherein applying radiofrequency energy to multiple locations comprises applying radiofrequency energy to the multiple locations simultaneously.

120. (Original) The method of claim 118 wherein applying radiofrequency energy to multiple locations comprises applying radiofrequency energy to the multiple locations using separate energy delivery elements of the member.

121. (Original) The method of claim 118 wherein applying radiofrequency energy to multiple locations comprises applying radiofrequency energy to the multiple locations serially.

122. (Original) The method of claim 118 wherein applying radiofrequency energy to multiple locations comprises applying radiofrequency energy to the multiple locations using a single energy delivery element of the member.

123. (Original) The method of claim 100, 101, 102, or 103 further comprising advancing the member along an inner wall of an annulus fibrosus.

124. (Original) A method comprising:
advancing a radiofrequency electrode into a nucleus pulposus of an intervertebral disc by blunt dissection, and
activating the electrode to remove material of the nucleus pulposus.

125. (Original) The method of claim 124 wherein activating the electrode to remove material of the nucleus pulposus reduces pressure in the intervertebral disc.

126. (Original) The method of claim 124 or 125 wherein activating the electrode to remove material of the nucleus pulposus comprises ablating material of the nucleus pulposus.

127. (Original) The method of claim 124 or 125 wherein advancing the electrode comprises advancing the electrode beyond a central region of the nucleus pulposus.

128. (Original) The method of claim 124 wherein advancing the electrode further comprises advancing a bipolar electrode configuration.

129. (Original) The method of claim 124 or 128 further comprising positioning the electrode at an inner wall of an annulus fibrosus of the intervertebral disc.

130. (Original) The method of claim 124 or 128 wherein advancing the electrode comprises advancing the electrode along a curved path.

131. (Original) The method of claim 124 or 125 wherein activating the electrode comprises activating the electrode while the electrode is positioned at a location adjacent an inner wall of an annulus fibrosus.

132. (Original) The method of claim 124 or 125 wherein activating the electrode comprises delivering radiofrequency energy from the electrode to multiple locations in the intervertebral disc.

133. (Original) The method of claim 132 wherein delivering radiofrequency energy to multiple locations comprises delivering radiofrequency energy from the electrode to the multiple locations simultaneously.

134. (Original) The method of claim 132 wherein delivering radiofrequency energy to multiple locations comprises delivering radiofrequency energy from the electrode to the multiple locations serially.

135. (Original) The method of claim 124 or 125 further comprising advancing the electrode along an inner wall of an annulus fibrosus.

136. (Original) A method comprising:
advancing a radiofrequency electrode through a nucleus pulposus of an intervertebral disc beyond a central region of the nucleus pulposus, and
activating the electrode to remove material of the nucleus pulposus.

137. (Original) The method of claim 136 wherein activating the electrode to remove material of the nucleus pulposus reduces pressure in the intervertebral disc.

138. (Original) The method of claim 136 or 137 wherein activating the electrode to remove material of the nucleus pulposus comprises ablating material of the nucleus pulposus.

139. (Original) The method of claim 136 wherein advancing the electrode further comprises advancing a bipolar electrode configuration.

140. (Original) The method of claim 136 or 139 further comprising positioning the electrode at an inner wall of an annulus fibrosus of the intervertebral disc.

141. (Original) The method of claim 136 or 139 wherein advancing the electrode comprises advancing the electrode along a curved path.

142. (Original) The method of claim 136 or 137 wherein activating the electrode comprises activating the electrode while the electrode is positioned at a location adjacent an inner wall of an annulus fibrosus.

143. (Original) The method of claim 136 or 137 wherein activating the electrode comprises delivering radiofrequency energy from the electrode to multiple locations in the intervertebral disc.

144. (Original) The method of claim 143 wherein delivering radiofrequency energy to multiple locations comprises delivering radiofrequency energy from the electrode to the multiple locations simultaneously.

145. (Original) The method of claim 143 wherein delivering radiofrequency energy to multiple locations comprises delivering radiofrequency energy from the electrode to the multiple locations serially.

146. (Original) The method of claim 136 or 137 further comprising advancing the electrode along an inner wall of an annulus fibrosus.

147. (Original) The method of claim 1 wherein advancing the member into the nucleus pulposus comprises conforming the member sufficiently to an inner wall of an annulus fibrosus to contact multiple locations on the inner wall.

148. (New) A method of delivering energy to an intervertebral disc, comprising: positioning an energy delivery device adjacent an inner wall of the disc, and

shrinking the nucleus pulposus.

149. (New) The method of claim 148 wherein positioning the energy delivery device further comprises positioning an energy delivery element of the device adjacent a bulge in the intervertebral disc.

150. (New) The method of claim 148 further comprising monitoring temperature.

151. (New) The method of claim 150 further comprising controlling energy delivery based on the monitored temperature.

152. (New) The method of claim 148 further comprising providing a catheter including the energy delivery device.

153. (New) The method of claim 152 further comprising introducing the catheter into the intervertebral disc and advancing the catheter along the inner wall of the disc.